

# SPEC ACCEL™ OMP Result

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IBM

(Test Sponsor: NVIDIA Corporation)

## IBM POWER 9

### Power Server AC922 (8335-GTC)

SPECaccel\_omp\_peak = Not Run

SPECaccel\_omp\_base = 4.01

ACCEL license: 019

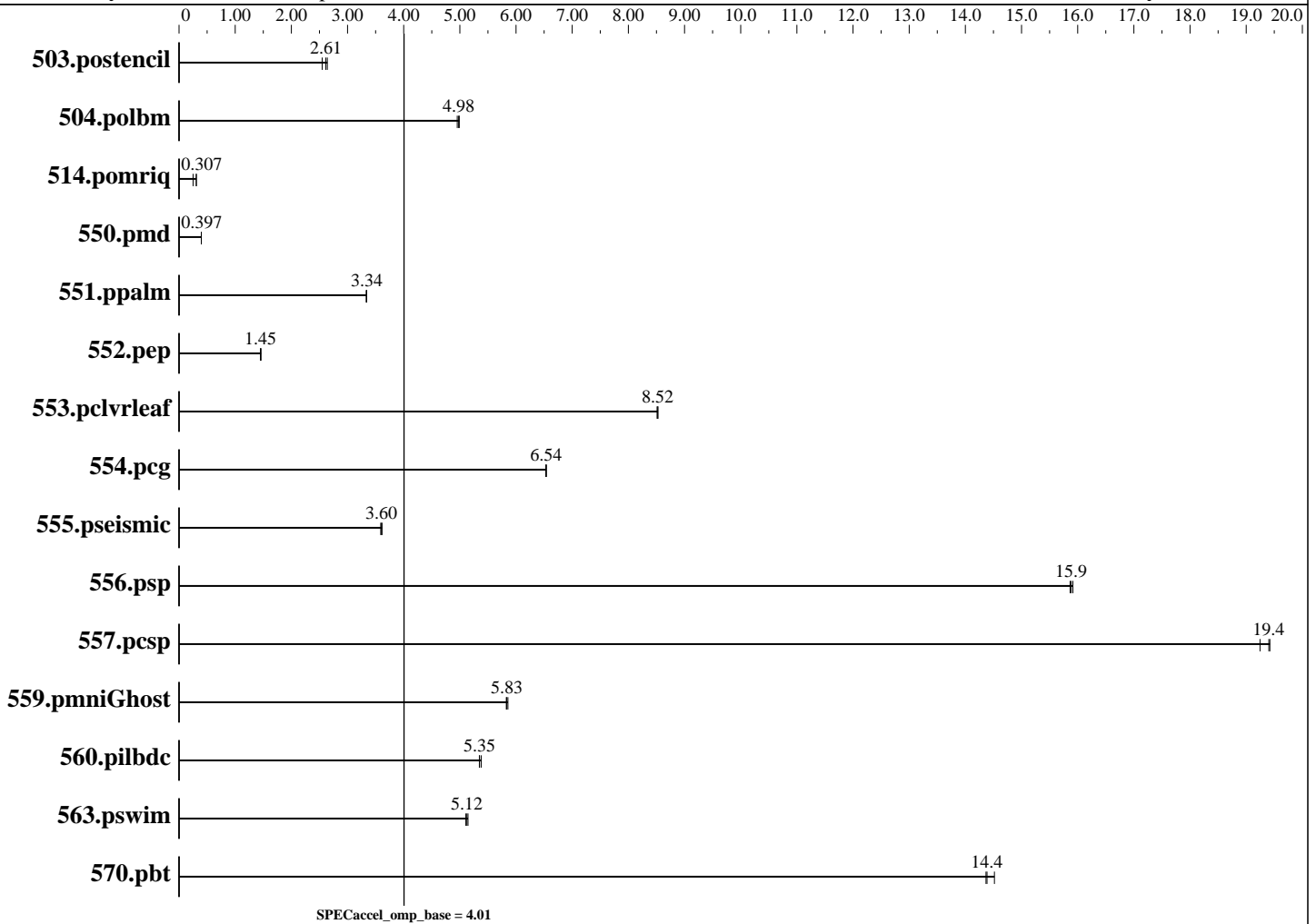
Test sponsor: NVIDIA Corporation

Tested by: NVIDIA Corporation

Test date: Nov-2019

Hardware Availability: Dec-2017

Software Availability: Nov-2019



#### Hardware

CPU Name: POWER9, altivec supported  
CPU Characteristics:  
CPU MHz: 2300  
CPU MHz Maximum: 3800  
FPU: --  
CPU(s) enabled: 40 cores, could not determine chips, 20 cores/chip, 4 threads/core  
CPU(s) orderable: 1-2 chips  
Primary Cache: 32 KB I + 32 KB D on chip per core  
Secondary Cache: 512 KB I+D on chip per core  
L3 Cache: 10 MB I+D on chip per chip  
Other Cache: None

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#### Accelerator

Accel Model Name: POWER 9  
Accel Vendor: IBM  
Accel Name: IBM POWER 9  
Type of Accel: CPU  
Accel Connection: Not applicable  
Does Accel Use ECC: Yes  
Accel Description: --  
Accel Driver: --

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## Hardware (Continued)

Memory: 144 GB  
143.291 GB fixme: If using DDR3, format is:  
'N GB (M x N GB nRxn PCn-nnnnnR-n, ECC)'  
Disk Subsystem: 927 GB add more disk info here  
Other Hardware: None

## Software

Operating System: Red Hat Enterprise Linux Server release 7.5 (Maipo)  
Red Hat Enterprise Linux Server release 7.5 (Maipo)  
4.14.0-49.8.1.el7a.ibmvidia.6.1.ppc64le  
Compiler: C/C++/Fortran : Version 19.10 of PGI Professional Edition  
File System: xfs  
System State: Run level 3 (add definition here)  
Other Software: None

## Results Table

Benchmark	Base						Peak					
	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio	Seconds	Ratio
503.postencil	<b>41.7</b>	<b>2.61</b>	41.3	2.64	42.8	2.55						
504.polbm	24.6	4.95	<b>24.5</b>	<b>4.98</b>	24.5	4.99						
514.pomriq	2484	0.250	<b>2021</b>	<b>0.307</b>	2018	0.308						
550.pmd	<b>608</b>	<b>0.397</b>	607	0.397	608	0.397						
551.ppalp	163	3.34	<b>163</b>	<b>3.34</b>	163	3.33						
552.pep	<b>159</b>	<b>1.45</b>	159	1.45	158	1.46						
553.pclvrleaf	135	8.51	<b>134</b>	<b>8.52</b>	134	8.53						
554.pcg	50.9	6.54	51.0	6.53	<b>50.9</b>	<b>6.54</b>						
555.pseismic	78.5	3.59	78.0	3.61	<b>78.2</b>	<b>3.60</b>						
556.psp	51.6	15.9	51.4	15.9	<b>51.5</b>	<b>15.9</b>						
557.pcsp	44.2	19.4	<b>44.3</b>	<b>19.4</b>	44.6	19.2						
559.pmniGhost	67.8	5.86	<b>68.0</b>	<b>5.83</b>	68.1	5.83						
560.pilbdc	<b>122</b>	<b>5.35</b>	122	5.35	121	5.38						
563.pswim	31.1	5.11	30.9	5.14	<b>31.0</b>	<b>5.12</b>						
570.pbt	53.7	14.5	<b>54.2</b>	<b>14.4</b>	54.3	14.4						

Results appear in the order in which they were run. Bold underlined text indicates a median measurement.

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## Submit Notes

The config file option 'submit' was used.

## Platform Notes

Sysinfo program /local/home/cparrott/SPEC/ACCEL-1.3/Docs/sysinfo  
\$Rev: 6965 \$ \$Date:: 2015-04-21 #\$ c05a7f14b1b1765e3fe1df68447e8a35  
running on perf-wsn1 Wed Nov 13 02:27:50 2019

This section contains SUT (System Under Test) info as seen by  
some common utilities. To remove or add to this section, see:  
<http://www.spec.org/accel/Docs/config.html#sysinfo>

```
From /proc/cpuinfo
  clock : 3616.000000MHz
  machine : PowerNV 8335-GTC.....
  model : 8335-GTC.....
  platform : PowerNV
  revision : 2.2 (pvr 004e 1202)
  cpu : POWER9, altivec supported
```

```
*
* 0 "physical id" tags found. Perhaps this is an older system,
* or a virtualized system. Not attempting to guess how to
* count chips/cores for this system.
*
```

```
    160 "processors"
cores, siblings (Caution: counting these is hw and system dependent. The
following excerpts from /proc/cpuinfo might not be reliable. Use with
caution.)
```

```
From /proc/meminfo
MemTotal:      150251584 kB
HugePages_Total:       0
Hugepagesize:       2048 kB
```

```
/usr/bin/lsb_release -d
  Red Hat Enterprise Linux Server release 7.5 (Maipo)
```

```
From /etc/*release* /etc/*version*
os-release:
  NAME="Red Hat Enterprise Linux Server"
  VERSION="7.5 (Maipo)"
  ID="rhel"
  ID_LIKE="fedora"
  VARIANT="Server"
  VARIANT_ID="server"
  VERSION_ID="7.5"
  PRETTY_NAME="Red Hat Enterprise Linux Server 7.5 (Maipo)"
redhat-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)
```

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## Platform Notes (Continued)

system-release: Red Hat Enterprise Linux Server release 7.5 (Maipo)

system-release-cpe: cpe:/o:redhat:enterprise\_linux:7.5:ga:server

uname -a:

```
Linux perf-wsn1 4.14.0-49.8.1.el7a.ibm.nvidia.6.1.ppc64le #1 SMP Tue Jun 5  
13:56:12 -03 2018 ppc64le ppc64le ppc64le GNU/Linux
```

run-level 3 Oct 6 15:08

SPEC is set to: /local/home/cparrott/SPEC/ACCEL-1.3

Filesystem	Type	Size	Used	Avail	Use%	Mounted on
/dev/mapper/rhel_wsn1-root	xfs	927G	173G	754G	19%	/

(End of data from sysinfo program)

## General Notes

Environment variables set by runspec before the start of the run:

HUGETLB\_PATH = "/mnt/hugetlb"

KMP\_ALL\_THREADS = "80"

OMP\_PROC\_BIND = "true"

OMP\_THREAD\_LIMIT = "80"

## Base Compiler Invocation

C benchmarks:

pgcc

Fortran benchmarks:

pgfortran

Benchmarks using both Fortran and C:

pgcc pgfortran

## Base Portability Flags

503.postencil: -DSPEC\_USE\_INNER\_SIMD

504.polbm: -DSPEC\_USE\_INNER\_SIMD

514.pomriq: -DSPEC\_USE\_INNER\_SIMD

550.pmd: -DSPEC\_USE\_INNER\_SIMD

551.ppalm: -DSPEC\_USE\_INNER\_SIMD

552.pep: -DSPEC\_USE\_INNER\_SIMD

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## Base Portability Flags (Continued)

553.pclvrleaf: -DSPEC\_USE\_INNER\_SIMD  
554.pcg: -DSPEC\_USE\_INNER\_SIMD  
555.pseismic: -DSPEC\_USE\_INNER\_SIMD  
556.psp: -DSPEC\_USE\_INNER\_SIMD  
557.pcsp: -DSPEC\_USE\_INNER\_SIMD  
559.pmniGhost: -DSPEC\_USE\_INNER\_SIMD  
560.pilbdc: -DSPEC\_USE\_INNER\_SIMD  
563.pswim: -DSPEC\_USE\_INNER\_SIMD  
570.pbt: -DSPEC\_USE\_INNER\_SIMD

## Base Optimization Flags

C benchmarks:

-fast -Mnouniform -mp=nvomp

Fortran benchmarks:

-fast -Mnouniform -mp=nvomp

Benchmarks using both Fortran and C:

553.pclvrleaf: -fast -Mnouniform -mp=nvomp

559.pmniGhost: -fast -Mnouniform -mp=nvomp -Mnomain

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For questions about this result, please contact the tester.  
For other inquiries, please contact [webmaster@spec.org](mailto:webmaster@spec.org).

Tested with SPEC ACCEL v1.3.  
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